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(54) Title: METHOD FOR INFORMATION TRANSFER VIA ACTIVE ELECTRONIC MAIL

(57) Abstract: The claimed invention relates to a method for information transfer via active electronic mail, wherein the information is encoded and included in an e-mail message and is decoded after receipt of the message. It is specific that the encoded information is fitted into the header of the e-mail message after a specified marker for a specified freely selectable field, and the decoding of the information is done in reading the header of the e-mail message while in access to the e-mail server.

METHOD FOR INFORMATION TRANSFER VIA ACTIVE
ELECTRONIC MAIL

Technical field of the invention

5   The present invention relates to a method of information transfer via active electronic mail and is applicable in transfer of and work with active information in the Internet system.

Prior art

10   A method for transfer of information via active electronic mail is known from the published international PCT application № WO98/49643), where the active information is attached to the body of the electronic letter as a container containing digital information and using built-in executable software.

15   The major disadvantage of this known method is that the access to the active information, transmitted as an attached file, is possible only after the electronic letter is opened.

        Another disadvantage of the known method is that when sending the active information as an attached file it is also visible for a recipient who
20   cannot interpret it, except in cases when using the e-mail program of the sender.

Summary of the invention

        The aim of the present invention is to develop a method for transfer
25   of information via active electronic mail compatible with all existing e-mail programs and providing for access to the transferred information before the electronic letter itself is opened.

        Another aim of the invention is to develop a method for transfer of active information via active electronic mail while the information is being
30   kept invisible for users of other e-mail systems.

        These aims have been reached by the method for active information transfer via active electronic mail where the information is

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encoded and is nested into an e-mail message, and after the receipt of the message the information is decoded. The method is characterized by the fact that the encoded information is integrated in the header of the e-mail
5 message after a specified marker for a specified freely selectable field, and the information is decoded in reading the header of the e-mail message while accessing the e-mail server.

It is advisable that the information encoding includes its transformation from a binary type in an ASCII flow, which is broken into
10 lines and is thus inserted in the header of the message, and after the message is received in the e-mail server, decoding is done by transforming back the lines into an ASCII flow, which is transformed into a binary type.

In one variant of embodiment of the method, the information is either binary or text data, such as graphic, audio, video, image,
15 Spreadsheet, etc.

In another variant of embodiment of the method, the information is one or more objects of any structure and functionality.

In another variant of embodiment of the method, the information is an executable or interpretable code.

20 In another variant of embodiment of the method, the information contains instructions for event/parameter sensitive functions or processes.

In another variant of embodiment of the method, the information is instructions for running of local programs with or without transfer of parameters.

25 In another variant of embodiment of the method, the information is any combination of the types of information mentioned above.

In an advantageous variant of embodiment of the method, the information is compressed before being encoded and is decompressed after being decoded.

30 In another advisable variant of embodiment of the method the encoded information is attached after the X-marker of the X-extended field.

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The method in accordance with the present invention has the advantage of being compatible with the common e-mail technologies providing at the same time the possibility for transfer of active information 5 in the header of the electronic letter. In using the method in accordance with the present invention the transferred information is kept invisible for recipients who use other e-mail programs. The method provides for the display of data of any type in the inbox or on the Desktop, as well as the running of processes of any type depending on the data content in the 10 header fields.

Examples of embodiment of the invention

In view to better clarify the way of embodiment of the method in accordance with the present invention, the valid standards and the 15 structure of an electronic message (e-mail) are presented below.

Protocols for sending and receipt of electronic mail:

SMTP – Simple Mail Transfer Program Protocol;

POP3 – Post Office Protocol;

IMAP4 – Internet Message Access Protocol.

20 The structure of an e-mail is determined by the RFC822 standard.

An e-mail message consists of a header and a body. Adhering to the RFC822 standard guarantees the compatibility of the e-mail message with the other e-mail programs and its transfer via the supporting of POP3 and IMAP4 e-mail servers.

25 The use of US-ASCII-7 code table (ISO 8859-1 to ISO 8859-9) should also be guaranteed (by the respective encoding method - BASE64 for example).

According to the RFC822 standard the structure of the e-mail header is as follows:

30	Field	Description
	FROM	e-mail address of the message owner
	SENDER	e-mail address of the message sender

REPLY_TO	e-mail address receiving a reply to an e-mail
TO	e-mail address of the recipient
CC	e-mail address of a recipient of a copy
DATE	date/time
SUBJECT	topic
COMMENT	comments to the message
X-extended	arbitrary fields, specific for a given e-mail program, being ignored by the other e-mail programs. This fields should start with X, for example X-data.

The method in accordance with the present invention makes provision for freely selectable fields to be used for the transfer of specific information. Depending on the content of this information the e-mail program is performing event sensitive procedures and functions and this is done before the body of the electronic message is transferred or read, i.e. before access is obtained to the body of the electronic message or to the attached files.

In order to identify and display the sender, the subject and the size of an e-mail, the e-mail programs read the header of the electronic message while it is on the e-mail server. Here, the whole header is read, but not the body of the e-mail or the attached files.

According to the method of the present invention, the information recorded in the X-extended or comment field (fields) is interpreted at the moment of reading the header (on the e-mail server) and depending on its content, this information is displayed or executed. The method provides for the use of all fields of the header, which are not used or are being partially used by the standard e-mail programs.

The header of an e-mail message, prepared using the method in accordance with the present invention, could be of the following type, for example:

Return-Path: <sherlock>

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Received: (qmail 1061 invoked from network); 10 May 2000 14:41:38-0000

Received: from   dialup2-68.access.nacamar.de(HELO   KLAUS.DOMAIN)

(62.144.249.68) by authsrv.nacamar.de with SMTP; 10 May 2000 14:41:38 – 0000

5   Message-ID:1219491.954859169410.JavaMail.faxserver@KLAUS.DOMAIN

Date: Tue, 4 Apr 2000 16:39:29 +0200 (GMT+02:00)

FROM: sherlock <sherlock>

TO: xitec@t-online.de

SUBJECT: test

10   CC: kocomp@t-online.de

Mime-Version: 1.0

Content-Type: text/html

Content-Transfer-Encoding: 7 bit

X-DATA:

15   pvf7Axf+5vY3L7eXlvlsAWFN5Wyble5wK+zFv9STf6lndzP/nPpebq9E+tkd0foS7U2R

5ryz

8ujmiLNaR+fJR8zolPL5PzySenJ/ok1V/xP8+5PdfGrVCgKcoUaHEktLEGRpsj5dX

auL1kt

R+fJR8zolPL5PzySenJ/ok1V/xP8+5PdfGe5wK+zFv9STf6lndzP/nPpebq9E+tkd0foS

20   7U2R5ryz

e5wK+zFv9STf6lndzP/nPpebq9E+tkd0foenJ/ok1V/xP8+5PdfGrVCgKcoUaHEktLEG

Rpsj5dXauL1kt

pvf7Axf+5vY3L7eXlvlsAWFN5Wyble5wK+zFv9STf6lndzP/nPpebq9E+tkd0foS7U2R

5ryz zFv9STf

25   wK+zFv9STf6lndzP/nPpebq9E

nJ/ok1V/xP8+5PdfGrVCgKcoUaHEktLEGRpsj5dXauL1kt zFv9STf

nJ/ok1V/xP8+5PdfGrVCgKcoUayble5wK+zFv9STf6lndzP/nPpebq9E+tkd0foS7U2R

5ryz zFv9STf

8ujmiLNaR+fJR8zo 1V/xP8+5PdfGrVCgKcoUaHEktLEGRpsj5dXauL1kt zFv9STf

30   zFv9STf zFv9

pvf7Axf+5vY3L7eXlvlsAWFN5Wyble5wK+zFv9STf6lndzP/nPpebq9E+tkd0foS7U2R

5ryz zFv9STf

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zFv9STf6lndzP/nPpebq9EnJ/ok1V/xP8+5PdfGrVCgKcoUaHEktLEGRpsj5dXauL1kt

zFv9STf

R+fJR8zolPL5PzySenJ/ok1V/xP8+5PdfGe5wK+zFv9STf6lndzP/nPpebq9E+tkd0foS7U2

R5ryz

f6lndzP/nPpebq9E+tkd0foenJ/ok1V/xP8+5PdfGrVCgKcoUaHEktLEGRpsj5dXauL1

kt zFv9STf

The example above presents an object, in this case a JPG-File, in the inbox of the e-mail program. The object can be interpreted only by an e-mail program that uses the method in accordance with the present invention. For all other programs this object is invisible.

The information content of the data additionally transferred into the header could be: binary or text data (image, video, audio, text, Spreadsheet, etc.); one or more objects of any structure and functionality; executable or interpretable program codes; instructions for event/parameter sensitive procedures and functions or processes; instructions for running local programs with or without transfer of parameters, as well as any combination of such data.

The technology for data transfer by the method according to the present invention is as follows:

Data transfer:

The types of data mentioned above are compressed or uncompressed and encoded in ASCII-7 code (for example by the BASE 64 algorithm), which results in an ASCII flow of specific length. Compressing the data is not a compulsory operation of the method of the present invention. A X-marker in the X-extended field is placed in the header (other markers could be used in other fields). The ASCII flow is broken into lines (the maximum line length being 80 signs) and is attached after the marker. The header prepared in the above mentioned method is then used for the transfer of the electronic mail.

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Data receipt:

The electronic messages available on the e-mail server are read (with command List POP3Protocol, IMAP4 or with command FETCH, PARTIAL IMAP4). While the commands are executed, all data contained in the header of the read electronic messages are transferred. In this way the information attached after the X-marker is also transferred, and this is done before the transfer of the message body or the attached files. The lines after the X-marker are fitted together in an ASCII flow, which is transformed into a binary flow (through BASE 64, for example) and is eventually decompressed. If the information is graphic, video, audio or text data, the data are displayed. If the information is one or more objects of any structure and functionality, then these objects are executed. Such objects provoke the running of processes (WEB, FTP, running of local programs). Such process could be event controlled (by a button or mouse click, etc.). Furthermore, if the information transferred is an executable or interpretable code, then this code is executed.

All functions mentioned above are done during the access to the e-mail server reading the catalogue with the e-mail messages available on it. Of course, it is possible for the objects or functions to be programmed in such a way that their execution be done later or made event sensitive.

The functions which could be executed while reading the e-mail directory on the e-mail server (download/reading of an electronic message/saving an electronic message/opening/closing an e-mail) are presented below. These functions could be:

automatic or user-interactive display of graphic objects;

automatic or user-interactive execution of video, audio, flash, etc.;

automatic or user-interactive starting of parts of programs, shifted into the header or down-loaded from the Internet server, where the shift is provoked by the e-mail;

automatic or user-interactive starting of programs or parts of programs shifted into the message body;

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automatic or user-interactive download of the electronic message body or files attached to it;

automatic or user-interactive exchange of digital signatures;

automatic or user-interactive Reply-Mail if requested by the sender;

automatic or user-interactive encoding;

automatic or user-interactive compression of data;

automatic or user-interactive data processing with programs available on the Internet server (for example, translation of an electronic message from one language into another, Import/Export files in/to other formats, etc.);

automatic or user-interactive control on the rights for sending/receipt through checking-up of certificates;

automatic or user-interactive control of the server (local, remote or Internet server based on IP-addresses) with retrieval of pages, directories, programs, data, scripts, plug-ins, etc.;

automatic or user-interactive installing and removal, configuration, software updating;

starting of local and/or network resident virus scanners and/or safety programs, query for passwords and/or other identification tools (PIN, Fingerprint, Retinal eye scan, Biomass);

modifications, redesign, joining of new graphic elements or controllable functions (Active Links, for example) in an interactive user regime;

maintenance of Workflow-Management and Groupware applications;

managing of applications with Signal Processing;

maintenance of goods inventory systems (Warehouse, e-commerce)

The possibilities for embodiment of the method in accordance with the present invention described so far are illustrative only. They should not be considered, on any account, as restrictive to the scope of protection, defined in the enclosed claims.

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PATENT CLAIMS

1. A method for information transfer via active electronic mail, wherein the information is encoded and included in an e-mail message and is decoded after receipt of the message, characterized in that the encoded information is fitted into the header of the e-mail message after a specified marker for a specified freely selctable field, and the decoding of the information is done in reading the header of the e-mail message while in access to the e-mail server.

2. A method in accordance with claim 1, characterized in that the encoding of the information includes its transformation from a binary type in an ASCII flow, which is broken into lines and is thus fitted into the header of the message, and after the message is received in the e-mail server, decoding is done by transforming back the lines into ASCII flow, which is transformed into a binary type.

3. A method in accordance with claim 1 or 2 characterized in that the information is either binary or text data, such as graphic, audio, video, image, Spreadsheet, etc.

4. A method in accordance with claim 1 or 2 characterized in that the information is one or more objects of any structure and functionality.

5. A method in accordance with claim 1 or 2 characterized in that the information is an executable or interpretable code.

6. A method in accordance with claim 1 or 2 characterized in that the information represents instructions for event/parameter sensitive functions or processes.

7. A method in accordance with claim 1 or 2 characterized in that the information represents instructions for running local programs with or without transfer of parameters.

8. A method in accordance with claim 1 or 2 characterized in that the information is any combination of the types of information mentioned in the above claims 2 to 7.

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9. A method in accordance with one of the claims 1 to 8 characterized in that the information is compressed before being encoded and is decompressed after being decoded.

10. A method in accordance with one of the claims 1 to 9 characterized in that the encoded information is attached after the X-marker of the X-extended field or after a specific marker of the comments field.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB 00/01086

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7   G06F17/60

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols)
IPC 7   G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	RICH BURRIGE: "Faces, unix man page" INTERNET DOCUMENT, 'Online! 13 November 1991 (1991-11-13), pages 1-11, XP002168499 Retrieved from the Internet: <URL:http://web.mit.edu/outland/src/xfaces /faces/faces.man.text> 'retrieved on 2001-05-21! page 1, line 12 - line 31	1-4,9,10
Y	page 2, line 27 - line 30 page 4, line 21 - line 25 page 6, line 25 - line 27 page 8, line 3 - line 21	5-7
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[X] Further documents are listed in the continuation of box C.	[X] Patent family members are listed in annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
29 May 2001	13/06/2001

Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Nicoli, F

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INTERNATIONAL SEARCH REPORT

	International Application No
	PCT/IB 00/01086

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
X	CHRISTOPHER B. LIEBMAN: "XFaces 3.3" INTERNET DOCUMENT, 'Online! 12 March 1994 (1994-03-12), pages 1-3, XP002168500 Retrieved from the Internet: <URL:http://www.mit.edu/afs/athena/contrib /graphics/src/xfaces/xfaces-3.3.README> 'retrieved on 2001-05-21! page 1 ---	1,9,10
Y	SAKAMA Y ET AL: "AGENT COMMUNICATIONS ON OCN" NTT REVIEW,JP,TELECOMMUNICATIONS ASSOCIATION, TOKYO, vol. 9, no. 3, 1 May 1997 (1997-05-01), pages 40-48, XP000694464 page 43, left-hand column, line 28 -middle column, line 3 page 43, middle column, line 52 -right-hand column, line 34 ---	5-7
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A	GILLES MAIRE: "Un nouveau guide d'Internet, Chapitre 8" INTERNET DOCUMENT, 'Online! 1 May 1998 (1998-05-01), pages 1-15, XP002168501 Retrieved from the Internet: <URL:http://guide.ungi.net/email.htm#_0> 'retrieved on 2001-05-25! page 8, line 30 -page 9, last line ---	1,2,4,8, 9

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9222033 A	10-12-1992	NONE	

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